REMARKS

This Reply and Amendment is intended to be completely responsive to the Office Action dated February 27, 2001 for the above-identified Application under to 37 C.F.R. §§ 1.111 and 1.112.

Status of Claims

Claims 30-56 stand rejected. On entry of this Reply and Amendment, Claims 30 and 44 will be amended for clarity, and new Claims 57-71 will be added to present claims of varying scope.[1] Accordingly, Claims 30-71 will be pending in this Application.

No new matter has been added.

The claim amendments and the status of the claims are shown in Exhibit A "marked up" relative to the previous version of the claims. 37 C.F.R. § 1.121.

Power of Attorney

The power of attorney to prosecute the Application has been provided to the undersigned attorney by the Assignee of the Application (i.e. Johnson Controls Technology Company).[2] A Power of Attorney form executed by the authorized representative of Johnson Controls Technology Company is provided herewith.

Claim Rejections -- Double Patenting

On Page 2 of the Office Action, the Examiner rejected Claims 30-56 of the Application under the judicially created doctrine of nonstatutory double patenting as being unpatentable over Claims 1-33 of U.S. Patent No. 6,117,594 titled "Alloy for Battery Grids" (the '594 patent). The Examiner stated:

> A timely filed terminal disclaimer in compliance with 37 C.F.R. § 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the

[1] The "scope" of independent Claims 30 and 44 has not been "narrowed" by this Reply and Amendment.

[2] Johnson Controls Technology Company is a joint assignee of the Application.

> conflicting application or patent is shown to be commonly owned with this application.

The present Application and the '594 patent are commonly owned. Since a timely filed terminal disclaimer would overcome the rejection (such that further consideration of the claims on that rejection should not be necessary), the Applicants request that the nonstatutory double patenting rejection be held in abeyance until allowable subject matter is indicated by the Examiner. 37 C.F.R. § 1.111.

Claim Rejections -- 35 U.S.C. § 102(e)

On Page 3 of the Office Action, the Examiner rejected Claims 30-38, 40-52 and 54-56 as presented for examination as being anticipated under 35 U.S.C. § 102(e) by U.S. Patent No. 5,874,186 ("the Rao '186 patent"). The Examiner stated:

> [The Rao '186 patent] discloses lead-acid batteries having grids made from calcium-tin-silver lead-based alloys in which the alloy composition is carefully selected based upon the grid manufacturing technique of choice and the battery service application. Thus, for such directly cast strip positive grids, it has been found that alloys of the following composition, based upon the total weight of the fabricated grid, are suitable: about 0.030 to 0.050% calcium, from about 0.65 to 1.25% tin, from about 0.018 to 0.030% silver, and the remainder lead (see abstract). Aluminum can be optionally included in an amount from about 0.004 to about 0.01% (col. 9, 54-57). Alternatively for gravity casting of the grid, the alloy composition of the grid is: 0.035 to 0.055% calcium, about 0.95 to about 1.45% tin, about 0.018 to about 0.030% silver, and the remainder lead, all of the percentages being based upon the total weight of the grid. Rao teaches many alternative compositions for the lead-based alloy grid depending on the technique which is used to manufacture the grid. See col. 9, line 45 through col. 10, line 8. The use of the grid in sealed and maintenance free batteries is taught. When the battery grids are made by continuous strip casting the lead based alloy is: calcium in the range of from 0.030 to 0.050%, tin in the range of from 0.95 to 1.25% and silver in the range of from 0.017 to 0.030% (see abstract).

The subject matter of independent Claims 30 and 44 is not identically disclosed or described in the Rao '186 patent. Claims 30 and 44 each recite a combination including, among other elements, a "grid supporting structure" for a "lead-acid battery"

comprising a "a lead-based alloy," "tin in the range of about 0.8% to about 1.1%" "calcium in an amount such that the ratio of tin to calcium is greater than about 12:1," and "silver in the range of greater than 0 to about 0.02%," wherein the "percentages are based on the total weight of the lead-based alloy," which is not identically disclosed or described in the Rao '186 patent.

In order to anticipate, the subject matter recited in Claims 30 and 44 must be disclosed in the Rao '186 patent with "sufficient specificity to constitute an anticipation under the statute." See M.P.E.P. § 2131.03, providing:

> Prior art which teaches a range within, overlapping, or touching the claimed range anticipates if the prior art range discloses the claimed range with "sufficient specificity" . . . .When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute."

The ranges provided in the Rao '186 patent do not provide a "disclosure or description" with "sufficient specificity" of the subject matter recited in independent Claims 30 and 44. No specific Examples of the Rao '186 patent fall within the silver range recited in Claims 30 and 44 (i.e. "silver in the range of greater than 0 to about 0.02%").[3] See Example 1 of the Rao '186 patent col. 20, lines 33-38 (emphasis added):

> The cast grids had the following compositions: Alloy 1 (0.029% calcium, 0.49% tin, 0.032% silver and the remainder lead), Alloy 2 (0.045% calcium, 0.48% tin, 0.031 silver and the remainder lead), and Commercial grid alloy (0.1% calcium, 0.62% tin and the remainder lead).

See also Example 2 of the Rao '186 patent col. 23, lines 23-37 (emphasis added):

> The alloy composition used for the positive plates was as follows: 0.028-0.036% Ca, 0.52% Sn, 0.036% Ag--Pb. . . . positive plates gravity cast from an alloy composition of 0.04% Ca, 0.53% Sn, 0.033 Ag.

[3] The Applicants acknowledge that the Abstract of U.S. Patent No. 5,691,087 issued to Rao et al. provides for "about 0.015% to about 0.045% silver."

The Rao '186 patent "discloses only that which it describes, whether specifically or in general terms, so as to convey intelligence to one capable of understanding."[4] The Rao '186 patent describes an alloy having relatively high silver of 0.031% and higher. Further, unexpected results in the claimed ranges (see Declaration of M. Eric Taylor dated 4/6/2000) are not indicated in the Rao '186 patent. Accordingly, independent Claim 30 (and corresponding dependent Claims 31-43) and independent Claim 44 (and corresponding dependent Claims 45-52) are not anticipated by the Rao '186 patent under 35 U.S.C. § 102(e) and are patentable.

Claim Rejections -- 35 U.S.C. § 103(a)

On Page 3 of the Office Action, the Examiner alternatively rejected Claims 30-38, 40-52 and 54-56 (and rejected dependent Claims 39 and 53) as presented for examination as being unpatentable under 35 U.S.C. § 103(a) in view of the Rao '186 patent The Examiner stated:

> The portions of the claimed ranges of calcium, tin and/or silver which are not contained within the ranges of [the Rao '186 patent] are alternatively unpatentable. The instant claims and the [the Rao '186 patent] patent use language such as "about" when describing and claiming the ranges of calcium, tin and silver in the lead based alloy. Language such as "about" is interpreted broadly when applying prior art.

The subject matter recited in independent Claims 30 and 44 would not have been obvious under 35 U.S.C. § 103(a) because the Rao '186 patent, a single reference, does not disclose, teach or suggest the combination of elements recited in independent Claims 30 and 44. The proposed modification of the alloy composition of the Rao '186 patent, neither discloses, teaches nor suggests the "grid supporting structure" including, among other elements, "tin in the range of about 0.8% to about 1.1%," calcium in an amount such that the ratio of tin to calcium is greater than about 12:1," and "silver in the range of greater than 0 to about 0.02%." No proper modification of the alloy composition of the Rao '186 patent would result in the "grid supporting structure" recited in Claims 30

[4] Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1262, 9 U.S.P.Q.2d 1962, 1970 (Fed. Cir. 1989).

and 44. The suggestion to make the modification of the alloy composition of the Rao '186 patent has been taken from the Applicants' own disclosure (using hindsight), which is improper. No suggestion or motivation to make the cited modification is present in the Rao '186 patent Still further modification of the alloy composition of the Rao '186 patent would be required to provide the "grid supporting structure" recited in Claims 30 and 44, and such modification is taught only by the Applicants' own disclosure.

The subject matter recited in independent Claim 30 (and corresponding dependent Claims 31-43) and independent Claim 44 (and corresponding dependent Claims 44-52), considered as a whole, would not have been obvious to a person having ordinary skill in the art. Accordingly, Claims 30-52 are patentable, and the Applicants request the withdrawal of the rejection to Claims 30-52 under 35 U.S.C. § 103(a).

* * *

It is submitted that the Application is in a condition for allowance. On entry of this Reply and Amendment, Claims 30-71 will be pending in this Application. The Applicants respectfully request reconsideration and allowance of all pending Claims 30-71.

The Examiner is invited to telephone the undersigned if such would advance the prosecution of the Application.

Respectfully submitted,

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By _____
Christopher M. Turoski
Attorney for Applicant
Registration No. 44,456

FOLEY & LARDNER
Firstar Center
777 East Wisconsin Avenue
Milwaukee, Wisconsin 53202-5367
Telephone: (414) 297-5654
Telecopy: (414) 297-4900

EXHIBIT A

30. (Once Amended) A lead-acid cell for a battery comprising a container, at least one positive plate and [a] at least one positive negative plate disposed within the container, a separator disposed within the container and separating the at least one positive and the at least one negative [plates] plate, the positive plate comprising a grid supporting structure having a layer of active material [pasted] coupled thereto, the grid supporting structure comprising:

a lead-based alloy [consisting essentially of] comprising lead[,];

tin in the range of about 0.8% to about 1.1%;

calcium in an amount such that the ratio of tin to calcium is greater than about 12:1[, and];

silver in the range of greater than 0 to about 0.02%[,];

wherein the percentages [being] are based upon the total weight of the lead-based alloy.

44. (Once Amended) A grid supporting structure for use in a lead-acid battery having at least one positive plate and [a] at least one negative plate disposed within the container, a separator disposed within the container and separating the at least one positive plate and the at least one negative [plates] plate, the grid supporting structure having a layer of active material pasted thereto, the grid supporting structure comprising:

a lead-based alloy consisting essentially of lead[,];

tin in the range of about 0.8% to about 1.1%;

calcium in an amount such that the ratio of tin to calcium is greater than about 12:1[, and];

silver in the range of greater than 0 to about 0.02%[,];

wherein the percentages [being] are based upon the total weight of the lead-based alloy.